CLAIMS

What is claimed is:

1. A method of adjusting a printing width of a printing paper performed in a printer that drives motors placed horizontally and vertically and that prints data, the method comprising:

modifying a previously-provided width decision value used to decide a width of the printing paper or a previously-provided height decision value used to decide a height of the printing paper;

deciding a speed value of the motor placed horizontally and a speed value of the motor placed vertically from the modified width decision value or the modified height decision value; and

driving the motors placed horizontally and vertically in accordance with the decided speed values of the motors placed horizontally and vertically and printing the data.

2. The method of claim 1, wherein the operation of deciding comprises:

determining whether both the width decision value and the height decision value have been modified;

if it is determined that both the width decision value and the height decision value have not been modified, determining whether the width decision value is modified;

if it is determined that the width decision value has been modified, deciding a first relative speed value of the motor placed horizontally;

deciding a second relative speed value of the motor placed vertically, which corresponds to the first relative speed value;

if it is determined that the width decision value has not been modified, determining whether the height decision value has been modified;

if it is determined that the height decision value has been modified, deciding a third relative speed value of the motor placed vertically;

deciding a fourth relative speed value of the motor placed horizontally, which corresponds to the third relative speed value; and

if it is determined that both the width decision value and the height decision value have been modified, deciding a fifth relative speed value of the motor placed horizontally and a sixth relative speed value of the motor placed vertically, wherein each of the first, fourth, and fifth relative speed values is the speed value of the motor placed horizontally, and each of the second, third, and sixth relative speed values is the speed value of the motor placed vertically.

3. The method of claim 2, wherein the first relative speed value is decided by the equation,

$$Sh1 = Ha \times K \div Vf ,$$

where Sh1 is the first relative speed value, Ha is the modified width decision value, K is a reference value with respect to the provided width decision value or the provided height decision value, and Vf is the provided height decision value.

4. The method of claim 3, wherein the second relative speed value is decided by the equation,

$$Sv2 = Vf \times K \div Sh1 ,$$

where Sv2 is the second relative speed value.

5. The method of claim 2, wherein the third relative speed value is decided by the equation,

$$Sv3 = Va \times K \div Hf ,$$

where Sv3 is the third relative speed value, Va is the modified height decision value, K is a reference value with respect to the provided width decision value or the provided height decision value, and Hf is the provided width decision value.

6. The method of claim 5, wherein the fourth relative speed value is decided by the equation,

$$Sh4 = Hf \times K \div Sv3 ,$$

where Sh4 is the fourth relative speed value.

7. The method of claim 2, wherein the operation of deciding the fifth relative speed value at the motor placed horizontally and the sixth relative speed value of the motor placed vertically comprises:

deciding a seventh relative speed value of the motor placed horizontally;

deciding an eighth relative speed value of the motor placed vertically, which corresponds to the seventh relative speed value;

deciding a ninth relative speed value of the motor placed vertically;

deciding a tenth relative speed value of the motor placed horizontally, which corresponds to the ninth relative speed value; and

obtaining an average value between the seventh decided relative speed value and the tenth decided relative speed value, deciding the average value as the fifth relative speed value, obtaining an average value between the eighth decided relative speed value and the ninth decided relative speed value, and deciding the average value as the sixth relative speed value.

8. The method of claim 7, wherein the seventh relative speed value is decided by

$$Sh7 = Ha \times K \div Vf ,$$

where Sh7 is the seventh relative speed value, Ha is the modified width decision value, K is a reference value with respect to the provided width decision value or the provided height decision value, and Vf is the provided height decision value.

9. The method of claim 8, wherein the eighth relative speed value is decided by

$$Sv8 = Vf \times K \div Sh7 ,$$

where Sv8 is the eighth relative speed value.

10. The method of claim 9, wherein the ninth relative speed value is decided by

$$Sv9 = Va \times K \div Hf ,$$

where Sv9 is the ninth relative speed value, Va is the modified height decision value, and Hf is the provided width decision value.

11. The method of claim 10, wherein the tenth relative speed value is decided by

$$Sh10 = Hf \times K \div Sv9 ,$$

where Sh10 is the tenth relative speed value.

12. The method of claim 2, wherein the operation of deciding the fifth relative speed value of the motor placed horizontally and the sixth relative speed value of the motor placed vertically further comprises:

deciding an eleventh relative speed value of the motor placed vertically;

deciding a twelfth relative speed value of the motor placed horizontally, which corresponds to the eleventh relative speed value;

deciding a thirteenth relative speed value of the motor placed horizontally;

deciding a fourteenth relative speed value of the motor placed vertically, which corresponds to the thirteenth relative speed value; and

obtaining an average value between the twelfth decided relative speed value and the thirteenth decided relative speed value, deciding the average value as the fifth relative speed value, obtaining an average value between the eleventh decided relative speed value and the fourteenth decided relative speed value, and deciding the average value as the sixth relative speed value.

13. An apparatus that adjusts a printing width of a printing paper included in a printer that drives motors placed horizontally and vertically and that prints data, the apparatus comprising:

a printing width value modification unit having a width decision value to decide a width of the printing paper, or a height decision value to decide a height of the printing paper, that modifies the width decision value or the height decision value in response to a user's modification request signal, and outputs the result of modification;

a speed value decision unit deciding speed values of motors placed horizontally and vertically in response to the result of modification and outputs the results of the decision; and

a motor drive controlling unit driving the motors placed horizontally and vertically, in accordance with the decided speed values of the motors in response to the results of the decision.

14. The apparatus of claim 13, wherein the speed value decision unit comprises:

a value modification checking part checking whether the width decision value or the height decision value is modified by a user, and which outputs the result of checking;

a width speed value decision part deciding a first relative speed value of the motor placed horizontally or decides a fourth relative speed value of the motor placed horizontally corresponding to a third decided relative speed value of the motor placed vertically, in response to the result of checking, and outputs the results of the decision; and

a height speed value decision part which decides a third relative speed value of the motor placed vertically or decides a second relative speed value of the motor placed vertically corresponding to the first relative speed value decided by the width speed value decision part, in response to the result of checking, and outputs the results of the decision.

15. The apparatus of claim 14, wherein the width speed value decision part decides a seventh relative speed value of the motor placed horizontally or decides a tenth relative speed value of the motor placed horizontally corresponding to a ninth decided relative speed value of the motor placed vertically, in response to the result of checking, and outputs the results of the decision.

16. The apparatus of claim 15, wherein the height speed value decision part decides a ninth relative speed value of the motor placed vertically or decides an eighth relative speed value of the motor placed vertically corresponding to the seventh decided relative speed value, in response to the result of checking, and outputs the results of the decision.

17. The apparatus of claim 16, wherein the speed value decision unit further comprises:

a width speed value calculation part which calculates an average value between the seventh relative speed value and the tenth relative speed value, in response to the results input from the width speed value decision part and outputs the calculated average value; and

a height speed value calculation part which calculates an average value between the eighth relative speed value and the ninth relative speed value, in response to the results input from the height speed value decision part and outputs the calculated average value.

18. A method of adjusting a printing width of a printing paper, the method comprising:

selectively modifying at least one of a previous width decision value used to decide a width of the printing paper and a previous height decision value used to decide a height of the printing paper;

deciding a speed value of the motor placed horizontally and a speed value of the motor placed vertically from the selectively modified width decision value and the modified height decision value; and

driving the motors placed horizontally and vertically according to the decided speed values of the motors placed horizontally and vertically.

19. An apparatus, including first and second motors to drive printing operations, to adjust a printing width of a printing paper, comprising:

a printing width value modification unit having both a width decision value to decide a width of the printing paper, and a height decision value to decide a height of the printing paper, that selectively modifies at least one of the width decision value and the height decision value in response to a user's modification request signal, and outputs the result of modification;

a speed value decision unit to decide speed values of the first and second motors in response to the result of modification and outputs the results of the decision; and

a motor drive controlling unit to drive the first and second motors according to the decided speed values of the motors in response to the results of the decision.